



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,271	10/27/2003	Henry Samuel Marek	136842XZ (3830)	2792

7590 06/01/2005

Tracey R. Loughlin
DOUGHERTY, CLEMENTS & HOFER
Suite 300
1901 Roxborough Road
Charlotte, NC 28211

EXAMINER

YUN, JURIE

ART UNIT	PAPER NUMBER
----------	--------------

2882

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

824

Office Action Summary	Application No. 10/694,271	Applicant(s) MAREK, HENRY SAMUEL	
	Examiner Jurie Yun	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 4/12/05 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homme et al. (USPN 6,262,422 B1).
4. With respect to claims 1 and 13, Homme et al. disclose a scintillator comprising: a scintillator material (Fig. 2, 7) comprising a barrier coating (12) disposed thereon, wherein the barrier coating: (1) provides barrier protection to the scintillator material, (2) is capable of transmitting light therethrough, and (3) is capable of reflecting light back into the scintillator material (column 4, lines 29+ & column 5, lines 10+).

While Homme et al. depict a three layer construction for the barrier coating in Figure 2, they also teach that this could consist of a single layer (column 3, lines 12-14). Thus, it is evident that a barrier coating comprising a single-layer is also taught by Homme et al. Given this embodiment of a single-layer, it would have been obvious to one of ordinary skill in the art that this single-layer barrier coating would be disposed on top portions and interstitially on side portions of the scintillator material, since the first layer of the three layer construction depicted in Figure 2 is shown this way. Homme et al. teach (column 6, lines 7-21):

CsI, which forms the layer of scintillator 7 is highly hygroscopic, so that it dissolves by absorbing vapor in the air when left exposed. In order to prevent this phenomenon from occurring, as shown in FIG. 6, CVD method is used for enveloping the whole substrate with Parylene at a thickness of 10 μm , thereby forming the first organic film 9. Though there are gaps among the columnar crystals of CsI, Parylene intrudes into these narrow gaps to some extent, whereby the first organic film 9 comes into close contact with the scintillator layer 7. Further, the Parylene coating yields a precision thin film coating with a uniform thickness on the layer of scintillator 7 having irregularities. Since Parylene can be formed by CVD at a lower vacuum than in the case with the metal vapor deposition and at normal temperature as mentioned above, it can be processed easily.

From this, it is evident that Parylene is disposed on top portions and interstitially on side portions of the scintillator material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Parylene disposed on top portions and interstitially on side portions of the scintillator material, to prevent the scintillator from dissolving, as taught by Homme et al.

5. With respect to claim 18, Homme et al. disclose all of the elements as seen above, and an x-ray source; an amorphous silicon array optically coupled to the scintillator; wherein the x-ray source is capable of projecting the beam of x-rays towards the x-ray detector, the x-ray detector is capable of detecting the x-rays, and an image can be created therefrom (column 3, line 61 & column 6, line 66 – column 7, line 24).

6. With respect to claim 19, Homme et al. disclose a method for making a scintillator having a barrier coating thereon that has both protective properties and light reflective and light transmissive properties, the method comprising: disposing an amorphous silicon array (column 3, line 61) on a detector substrate (1); disposing a scintillator material (7) on the amorphous silicon array; forming a barrier coating (12) on the scintillator material; wherein the barrier coating: (1) provides barrier protection to the

Art Unit: 2882

scintillator material, (2) is capable of transmitting light therethrough, and (3) is capable of reflecting light back into the scintillator material (column 4, lines 29+ & column 5, lines 10+). As recited above, Homme et al. also disclose an embodiment using a single layer barrier coating and wherein the barrier coating is disposed on top portions and interstitially on side portions of the scintillator material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Parylene disposed on top portions and interstitially on side portions of the scintillator material, to prevent the scintillator from dissolving, as taught by Homme et al. (see claim 1 rejection above).

7. With respect to claim 2, Homme et al. do not specifically disclose the barrier coating comprises a material that has been modified to have light transmissive and reflective properties in addition to protective properties. Homme et al. disclose the barrier coating is made up of layers having these properties (column 4, lines 29+ & column 5, lines 10+). However, Homme et al. also disclose other embodiments (column 3, lines 12-14 & column 7, lines 25+) including a single layer, and use of other materials for the organic film. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a barrier coating comprising a material that has been modified to have light transmissive and reflective properties in addition to protective properties, in the Homme et al. apparatus, because this would be simpler to use than a multi-layered construction.

8. With respect to claim 3, Homme et al. disclose the material comprises Parylene (column 4, lines 29+).

Art Unit: 2882

9. With respect to claim 4, Homme et al. disclose the barrier coating (12) comprises a protective material and a reflective material on the scintillator material (column 4, lines 29+ & column 5, lines 10+). It is noted that there are no structural limitations conveyed by "that have been co-deposited onto...", and does not guarantee that these materials are intermixed.

10. With respect to claim 5, Homme et al. disclose the protective material comprises Parylene (column 4, lines 29+).

11. With respect to claim 6, Homme et al. disclose the reflective material comprises a light reflective material (column 5, lines 10+). Homme et al. do not disclose the reflective material can be co-deposited with Parylene, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine this through experimentation with the materials. Co-depositing the reflective material with Parylene would save time in manufacturing the detector.

12. With respect to claim 7, Homme et al. disclose the reflective material comprises at least one of a metal and a metal oxide (column 5, lines 10+).

13. With respect to claim 8, Homme et al. disclose the scintillator material comprises at least one of cesium iodide (column 6, line 7).

14. With respect to claims 9 and 15, Homme et al. disclose the barrier coating is a single coating overlying the scintillator material (column 3, lines 12-14).

15. With respect to claims 10, 16, and 22, Homme et al. disclose the barrier coating is disposed in a substantially conformal manner on the scintillator material (column 6, lines 7+).

Art Unit: 2882

16. With respect to claims 11 and 21, Homme et al. disclose the barrier coating is applied overlying the scintillator material via at least one of chemical vapor deposition (column 6, lines 7+).

17. With respect to claims 12 and 17, Homme et al. disclose the scintillator is used for at least one of medical imaging (column 1, lines 10-13).

18. With respect to claim 14, Homme et al. disclose the coating comprises at least one of Parylene, Parylene-N, Parylene-C, Parylene-D, a metal, a metal compound, a metal oxide, and a metal halide (column 4, lines 29+ & column 5, lines 10+).

19. With respect to claim 20, Homme et al. disclose disposing the scintillator material on the amorphous silicon array comprises growing the scintillator material on the amorphous silicon array (column 5, lines 52+). Homme et al. do not disclose the scintillator material is grown directly on the amorphous silicon array, as there is an insulating passivation film 5 disposed therebetween. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to not include the passivation film and grow the scintillator material directly on the amorphous silicon array, as this would result in a simpler and faster manufacturing process.

Response to Arguments

20. Applicant's arguments filed 4/12/05 have been fully considered but they are not persuasive. Applicant argues that the inorganic reflective/transmissive film (10) is disposed adjacent to the tops of the needles only, with the first organic barrier film (9) disposed therebetween. However, as noted above in the rejection of claims 1 and 13, Homme et al. teach the barrier coating could consist of a single layer (column 3, lines

Art Unit: 2882

12-14). Also, as discussed above, it is evident that Parylene is disposed on top portions and interstitially on side portions of the scintillator material, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the Parylene disposed on top portions and interstitially on side portions of the scintillator material, to prevent the scintillator from dissolving, as taught by Homme et al. (column 6, lines 7-21). Thus, the rejection is maintained.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

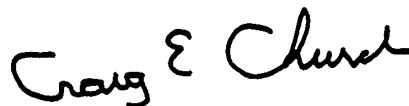
Art Unit: 2882

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jurie Yun
May 27, 2005



Craig E. Church
Primary Examiner